



Appendix G

Storm Water System User Fee

G.1 - Funding Report
G.2 - Stormwater Grants



KELLER
associates

Appendix G.1

Funding Report

DRAFT

CITY OF STAYTON

DRAFT STORMWATER RATE ANALYSIS

DRAFT STORMWATER RATE ANALYSIS

November 5, 2007

DRAFT

prepared by:

ECONOMIC & FINANCIAL ANALYSIS

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ECONOMIC & FINANCIAL ANALYSIS

Memorandum:

TO: Mike Faught
FROM: Raymond J. Bartlett
DATE: April 24, 2008
RE: Storm Water Rates

We finished compiling the billable amount of impervious surfaces in Stayton and came up short of my original estimate of approximately 17.6 million square feet. It came out to 13.3 million square feet. Table 1 summarizes the square feet by broad categories.

Table 1 Square Feet of Billable Impervious Surfaces in Stayton

	No of Accounts	Impervious Area	% of total	Average Sq. Ft.
Single Family Residential	2,232	5,580,000	42%	2,500
Multiplexes (2 to 4 units)	140	486,383	4%	3,474
Commercial (Incl. Apartments & Industrial)	409	7,185,065	54%	17,567
Totals	2,781	13,251,448	100%	

The plan was to charge a flat \$5.00 rate per single-family house and allocate the multiplexes and commercials on a cost per square foot. Table 2 does that based on total annual revenues of \$400,000. The rate is \$2.90 per 1,000 square feet of impervious surface. Commercial excludes Norpac since they have their own discharge permit.

Table 2 Storm Water Rates and Projected Revenues and Monthly Bills

	Rate per	Annual Revenue	Average Monthly Bill	Maximum Monthly Bill
Single Family Residential	\$5.00 House	\$133,920 33%	\$5.00	\$5.00
Multiplexes	\$2.90 1,000 sq ft	16,926 4%	\$10.08	\$27.20
Commercial	\$2.90 1,000 sq ft	250,040 62%	\$50.95	\$1,410.13
Totals		\$400,886		

At this rate, the monthly bill for the largest commercial customers will exceed \$1,000. Table 3 shows a frequency distribution of all commercial properties. The largest 10 to 14 properties likely will have

a problem with the rate as is. Figure 1 shows a scatter graph of all of the commercial properties. Notice that only 16 accounts are over 100,000 square feet. Of course it is more equitable to charge based on actual square feet for all uses, but we could consider either capping the monthly charge at some level, or reducing the rate and settling for less total revenue per year.

I'm out of town most of today and all day Friday, but I would like to discuss this issue with you on Monday or Tuesday next week and come to a resolution before finalizing the storm water rate analysis.

Table 3 Frequency of Commercial Accounts by Range of Impervious Surfaces

Range in Sq Ft			Monthly Bills		
Bottom	Top	Frequency	Bottom	Mid Point	Top
0	1,000	113		\$1.45	\$2.90
1,001	5,000	111	\$2.90	\$8.70	\$14.50
5,001	9,000	63	\$14.50	\$20.30	\$26.10
9,001	13,000	29	\$26.10	\$31.90	\$37.70
13,001	17,000	20	\$37.70	\$43.50	\$49.30
17,001	21,000	10	\$49.30	\$55.10	\$60.90
21,001	25,000	6	\$60.90	\$66.70	\$72.50
25,001	29,000	7	\$72.50	\$78.30	\$84.10
29,001	33,000	6	\$84.10	\$89.90	\$95.70
33,001	37,000	2	\$95.70	\$101.50	\$107.30
37,001	41,000	8	\$107.30	\$113.10	\$118.90
41,001	45,000	1	\$118.90	\$124.70	\$130.50
45,001	49,000	2	\$130.50	\$136.30	\$142.10
49,001	53,000	6	\$142.10	\$147.90	\$153.70
53,001	57,000	2	\$153.70	\$159.50	\$165.30
57,001	61,000	1	\$165.30	\$171.10	\$176.90
61,001	65,000	1	\$176.90	\$182.70	\$188.50
65,001	69,000	1	\$188.50	\$194.30	\$200.10
69,001	73,000	1	\$200.10	\$205.90	\$211.70
73,001	77,000	1	\$211.70	\$217.50	\$223.30
77,001	81,000	0	\$223.30	\$229.10	\$234.90
81,001	85,000	0	\$234.90	\$240.70	\$246.50
85,001	89,000	0	\$246.50	\$252.30	\$258.10
89,001	93,000	0	\$258.10	\$263.90	\$269.70
93,001	97,000	0	\$269.70	\$275.50	\$281.30
97,001	101,000	0	\$281.30	\$287.10	\$292.90
101,001	110,000	4	\$292.90	\$305.95	\$319.00
110,001	210,000	7	\$319.00	\$464.00	\$609.00
210,001	310,000	3	\$609.00	\$754.00	\$899.00
310,001	410,000	2	\$899.00	\$1,044.00	\$1,189.00
410,001	510,000	2	\$1,189.00	\$1,334.00	\$1,479.00

Figure 1 Scatter Graph of Commercial Accounts by Square Feet of Impervious Surface

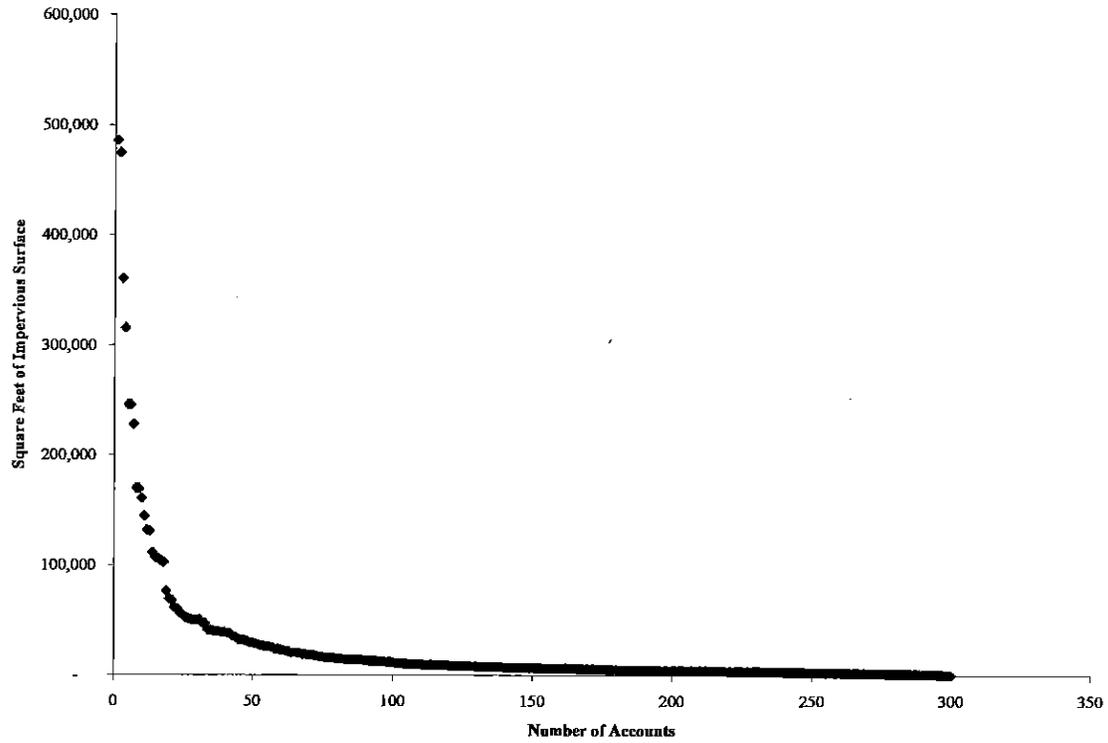


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SUMMARY

The City of Stayton currently pays for stormwater operations and maintenance from its public works department. This department receives revenues from the sanitary sewer, water, and general funds. It has paid for capital improvements with contributed capital from private developers and as part of other public works projects such as roadway and sewer line construction. Financially, the stormwater utility is split among these funds.

To more effectively manage the stormwater utility, the City needs to create the stormwater utility as a separate enterprise fund and eventually establish a schedule of rates and charges to pay for it.

The analysis shows that a beginning storm water rate of \$5.00 per single family house (\$0.002 per square foot for all other land uses) will produce sufficient revenue to pay for operating costs, debt service, and to build a capital reserve to periodically pay for capital improvements.

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CURRENT STORMWATER FINANCING

In this section, we estimate the City's current operation and maintenance expenses for stormwater, and estimate what the City should be spending to maintain the current stormwater system. Since the City has not kept track of stormwater as a separate utility, we compiled the financial information available and acknowledge that it provides an incomplete financial picture of the utility.

Table 1 shows the cash flow history and identifies missing information. For operating activities, the City transfers money from the General Fund, which is usually from the state-shared gas-tax revenues, for operating expenses. Notice that the utility does not have operating receipts of its own, such as water rates for the water utility. It also does not specifically identify personal services (labor expenses). These expenses are borne by the Public Works Department who's revenues come from sewer and water rates, and general fund revenues such as the gas tax.

For capital and capital related activities, the City undertakes storm drainage projects as cash is made available from other funds, often gas tax revenues. The City completed some storm drain repairs to its existing storm drainage lines and catch basins, installation of new facilities in Shaff Road in 2005-06 (\$8,522, and in 2006-07 (\$184,000). It also paid for a stormwater master plan, (\$69,300 in 2006-07).

Since the stormwater utility does not exist as a financial entity, it does not accumulate cash savings or earn interest on investments. The utility existed in the General Fund until fiscal year 2006-07, when it was transferred to the sewer fund, as part of the sanitary sewer utility. The City has not been keeping accounting records on the actual cost of labor to operate the system, and repairs and maintenance of the system has had to compete with other capital projects, such as street repairs, for money to make capital improvements.

Table 1 Cash Flow History, Stormwater Utility

	Audit		Estimate	Budget
	2004 2005	2005 2006	2006 2007	2007 2008
CASH FLOWS FROM OPERATING ACTIVITIES				
Operating Receipts				
Transfers from the Street Fund	2,319	11,781	25,860	18,025
Total Operating Receipts	2,319	11,781	25,860	18,025
Operating Expenditures				
Personal services				
Materials and services	2,319	11,781	25,860	18,025
Total Operating Expenditures	2,319	11,781	25,860	18,025
Net Cash Provided by Operating Activities	-	-	-	-
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES				
System development charges				
Capital expenditures	(7,413)	(28,127)	(253,300)	(30,000)
Bond/Loan Proceeds				
Grants				
Bond/Loan Closing Expense				
Transfers from other City funds	7,413	28,127	253,300	30,000
Net Cash Provided by (Used in) Capital and Related Financing Activities	-	-	-	-
CASH FLOWS FROM INVESTING ACTIVITIES:				
Interest income on investments				
Net Increase (Decrease) in Cash & Cash Equivalents	-	-	-	-
CASH AND CASH EQUIVALENTS - July 1	-	-	-	-
CASH AND CASH EQUIVALENTS - June 30	-	-	-	-

Source: City of Stayton, annual financial reports and budgets.

PROPOSED STORMWATER FINANCING

Keller Associates, Inc. evaluated the labor requirements and capital improvements needed by the existing stormwater system, and estimate the following annual costs of operation. The existing system is composed of approximately 13 miles of storm drain lines with 650 catch basins.

To maintain this system, Keller Associates estimates labor requirements of 1.2 full time equivalents (FTE) public works staff. The total annual cost of wages, benefits, and taxes is \$70,000 per year per FTE. The total annual cost in 2007 dollars is \$84,000 for staff. Keller Associates also estimate annual costs of materials and services for cleaning and routine maintenance is \$15,000 per year in 2007 dollars.

Keller Associates estimates a remaining useful life of 40 years during which time much of the system will need to be replaced or substantially reconstructed. In 2007 dollars, each catch basin costs on average \$1,100 and the drainage lines cost \$85 per lineal foot to replace. The total replacement value of the system is \$6.55 million. To properly repair the system, all of it will have to be replaced over the next 40 years at a cost in 2007 dollars of \$164,000 per year.

Keller Associates estimates that the current system has an average 40-year life cycle and at the current size and replacement cost, the City will have to spend about \$192,000 per year in 2007 dollars perpetually repair and replace the existing stormwater system.

In addition, Keller Associates estimates that recurring operating costs should amount to about \$166,000 per year in 2007 dollars: \$87,500 for 1.25 full-time equivalent public works staff, \$12,000 for water quality laboratory fees, \$36,500 for storm-water line cleaning and TV inspection of the lines, and \$30,000 for seasonal maintenance.

In addition to these recurring annual costs, Keller Associates identified capital improvement projects needed to alleviate current stormwater problems and to provide for future capacity as population and employment grow. Table 2 shows the list of capital improvements that amount to \$25.9 million 2007 dollars.

Table 2 Complete List of Capital Improvements, 2007 Dollars

Item (2007 Project Costs*)	% Benefit Growth	Growth (SDC)	Current (Rates)	Total
PRIORITY 1 (2008)				
<i>Priority 1A</i>				
Wetland Preservation	60%	429,000	286,000	715,000
Shaff Road Detention Basin and Piping	10%	175,470	1,579,230	1,754,700
10th Ave Detention Basin and Piping	15%	114,765	650,335	765,100
Subtotal Priority 1A		719,235	2,515,565	3,234,800
<i>Priority 1B</i>				
Industrial Detention Site Improvements	25%	23,750	71,250	95,000
Shaff Road Basin Pipeline Improvements	5%	178,775	3,396,725	3,575,500
10th Avenue Pipeline Improvements	15%	122,775	695,725	818,500
Norpac NE Detention Site	0%	0	620,800	620,800
5 Additional Manhole Monitoring Equipment	0%	0	96,700	96,700
Subtotal Priority 1B		325,300	4,881,200	5,206,500
Total Priority 1		1,044,535	7,396,765	8,441,300
PRIORITY 2 (2010)				
Fir to Regis through Regis HS Parking Lot	5%	17,940	340,860	358,800
Evergreen Ave to Norpac Dtn Site	5%	28,780	546,820	575,600
3rd and Jefferson to Library Dtn Site	5%	105,750	2,009,250	2,115,000
Millstream Woods to Norpac SW Dtn Site	10%	197,540	1,777,860	1,975,400
Total Priority 2		350,010	4,674,790	5,024,800
PRIORITY 3 (2015)				
Sylvan Meadows Subdivision	0%		72,100	72,100
Gardner Road-Regis High School	5%		637,800	637,800
Wedgewood Place	0%		736,600	736,600
Western Avenue	0%		732,400	732,400
Total Priority 3		0	2,178,900	2,178,900
PRIORITY 4 (2020)				
Library Improvements	0%		49,500	49,500
1st Avenue	0%		122,300	122,300
Washington Street Area	42%	90,972	125,628	216,600
North Peach Street	50%	41,250	41,250	82,500
Pacific Court			349,600	349,600
Fern Ridge Street Area	34%	578,476	1,122,924	1,701,400
Dozler Property Area	48%	355,584	385,216	740,800
Phillips Property Area	87%	1,732,953	258,947	1,991,900
Larch Avenue	0%	0	130,200	130,200
Detention Facilities	98%	3,333,960	68,040	3,402,000

Item (2007 Project Costs*)	% Benefit Growth	Growth (SDC)	Current (Rates)	Total
Pipeline Upsize Costs (over 18")	0%		1,430,800	1,430,800
Total Priority 4		6,133,195	4,084,405	10,217,600
TOTAL (rounded)		7,527,740	18,334,860	25,862,600

As Table 3 shows, about \$7.5 million of these projects will benefit and be paid by future development and likely will be funded from a system development charge. Each future development will pay its proportionate share of the cost of these projects. The majority of the projects and their costs, approximately \$18 million, will have to be paid by all of the City's residents and businesses.

The City currently has no specific rates or charges to pay for either operating costs or capital improvements. The City also may qualify for and apply to one of the many federal and state grant and loan programs described in the Appendix. In this forecast, we assume that the City does not receive any federal or state grants. Projects are scheduled to meet cash flow and assuming one large project, Shaff Road Detention Basin and pipeline, is financed with revenue bonds (approximately \$4.1 million) or as a loan from a state of Oregon agency such as DEQ or the OECDD.

Also, we limit the projects to be funded from 2010 through 2020 and to Priority 1 projects only. The lower the priority the less urgent they are needed, in part because they benefit future development; and, are more likely to be funded from SDC revenues.

We assume the revenue bond will be issued in fiscal year 2011-12 to pay for the Shaff Raod regional detention facility. This project is important because it will accommodate 10.4 acre feet of storage volume collected from the largest drainage basin, reducing peak stormwater runoff into the Salem Ditch. It will be designed to provide water quality treatment, and could double as a recreation area during dry periods. Since this detention pond will serve most of the already developed portions of the City, only 10 percent is allocated to future development. By that time, the stormwater user fee will have to be sufficient to pay all operating costs and interest and principal payments on the bonds. Since the stormwater utility will not have a sufficient financial history to issue the bonds without support from the sewer or water funds. Likely, the City will have to pledge net revenues from the sewer fund to help secure the stormwater revenue bonds. The City may also be able to apply to the State of Oregon for direct state loans that would not require a secondary pledge of sewer or water revenues.

The other projects in Priority 1 will be funded from cash reserves, net cash flows from operating activities, and accumulated SDC revenues. None of the Priority 2, 3, or 4 projects are scheduled to be completed until after 2020.

How these projects are to be paid for is shown in Tables 4 and 5. Table 4 is a list of forecast assumptions including the forecast of storm water rates. Table 5 is the cash flow forecast. Missing from the forecast is any grant funding that may become available from one or more of the sources listed in the Appendix.

Table 3 Priority 1 & 2 Capital Improvements, 2007 Dollars

	Total Cost 2007 \$'s	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PRIORITY 1 (2008)													
<i>Priority 1A</i>													
Wetland Preservation	715,000		312,000						203,000				232,000
Shaff Road Detention Basin and piping	1,754,700		240,000	250,000	262,000								
10th Ave Detention Basin and piping	765,100												
Subtotal Priority 1A	3,234,800		552,000	250,000	802,000				203,000				248,000
<i>Priority 1B</i>													
Industrial Detention Site Improvements	95,000												
Shaff Road Basin Pipeline Improvements	3,575,500			4,080,000									
10th Avenue Pipeline Improvements	818,500												
Norpac NE Detention Site	620,800												
5 Additional Manhole Monitoring Equipment	96,700												
Subtotal Priority 1B	5,206,500			4,080,000									
Total Priority 1	8,441,300		552,000	4,330,000	802,000				203,000				480,000
PRIORITY 2 (2010)													
Fir to Regis through Regis HS Parking Lot	358,800												
Evergreen Ave to Norpac Dtm Site	575,600												
3rd and Jefferson to Library Dtm Site	2,115,000												
Millstream Woods to Norpac SW Dtm Site	1,975,400												
Total Priority 2	5,024,800												
TOTAL (rounded)	13,466,100	0	552,000	4,330,000	802,000	0	0	0	203,000	0	0	0	480,000

Table 4 Cost of Annual Repair & Replacement

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Growth Rate	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Square feet of billable impervious surface	17,600,000	17,950,000	18,310,000	18,680,000	19,050,000	19,430,000	19,820,000	20,220,000	20,620,000	21,030,000	21,450,000	21,450,000
Rate Changes	5.00%	10.0%	9.1%	8.3%	3.8%	0.0%	0.0%	3.7%	3.6%	3.4%	3.3%	3.3%
Rate/Month, Avg. SF Residential (2,500 sq ft)	\$5.00	\$5.50	\$6.00	\$6.50	\$6.75	\$6.75	\$6.75	\$7.00	\$7.25	\$7.50	\$7.75	\$7.75
Rate, \$/1,000 sq ft/month	\$2.00	\$2.20	\$2.40	\$2.60	\$2.70	\$2.70	\$2.70	\$2.80	\$2.90	\$3.00	\$3.10	\$3.10
System Development Charge	\$2,000	\$2,090	\$2,180	\$2,280	\$2,380	\$2,490	\$2,600	\$2,720	\$2,840	\$2,970	\$3,100	\$3,100
SDC/sq ft	\$0.73	\$0.76	\$0.79	\$0.83	\$0.87	\$0.91	\$0.95	\$0.99	\$1.03	\$1.08	\$1.13	\$1.13
Inflation	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Labor	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Materials & Services	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Construction Cost Index	192,000	201,000	210,000	219,000	229,000	239,000	250,000	261,000	273,000	285,000	298,000	298,000

Table 5 Cash Flow Forecast, Stormwater Utility

	2009	2010	2010	2011	2011	2012	2012	2013	2013	2014	2014	2015	2015	2016	2016	2017	2017	2018	2018	2019	2019	2020	2020	
CASH FLOWS FROM OPERATING ACTIVITIES																								
Receipts from customers																								
Customer Service Charges	422,400	473,880	473,880	527,328	582,816	582,816	617,220	617,220	629,532	642,168	642,168	679,392	679,392	717,576	717,576	757,080	757,080	757,080	757,080	757,080	757,080	797,940	797,940	797,940
Total receipts	422,400	473,880	473,880	527,328	582,816	582,816	617,220	617,220	629,532	642,168	642,168	679,392	679,392	717,576	717,576	757,080	757,080	757,080	757,080	757,080	757,080	797,940	797,940	797,940
Payments to suppliers & contractors	48,000	52,000	52,000	56,000	60,000	60,000	65,000	70,000	70,000	75,000	81,000	81,000	81,000	87,000	87,000	94,000	94,000	94,000	94,000	94,000	94,000	101,000	101,000	101,000
Payments to employees	87,000	94,000	94,000	101,000	109,000	109,000	117,000	126,000	126,000	135,000	145,000	145,000	145,000	156,000	156,000	168,000	168,000	168,000	168,000	168,000	168,000	181,000	181,000	181,000
Seasonal maintenance employees	30,000	32,000	32,000	34,000	37,000	37,000	40,000	43,000	43,000	46,000	49,000	49,000	49,000	53,000	53,000	57,000	57,000	57,000	57,000	57,000	57,000	61,000	61,000	61,000
Total expenses	135,000	146,000	146,000	157,000	169,000	169,000	182,000	196,000	196,000	210,000	210,000	226,000	226,000	243,000	243,000	262,000	262,000	262,000	262,000	262,000	262,000	282,000	282,000	282,000
Net cash from operating activities	287,400	327,880	327,880	370,328	413,816	413,816	435,220	435,220	433,532	432,168	432,168	453,392	453,392	474,576	474,576	495,080	495,080	495,080	495,080	495,080	495,080	515,940	515,940	515,940

CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES

Acquisition of property & plant	-	(552,000)	(4,330,000)	(262,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(480,000)
Annual capital replacement	(192,000)	(201,000)	(201,000)	(210,000)	(219,000)	(219,000)	(229,000)	(229,000)	(239,000)	(250,000)	(250,000)	(261,000)	(261,000)	(273,000)	(273,000)	(285,000)	(285,000)	(285,000)	(285,000)	(285,000)	(285,000)	(298,000)	(298,000)	(298,000)
SDC Revenues	213,000	213,000	213,000	228,000	246,000	246,000	258,000	277,000	277,000	296,000	296,000	317,000	317,000	330,000	330,000	354,000	354,000	354,000	354,000	354,000	354,000	380,000	380,000	380,000
Loan and Bond Proceeds				4,418,000																				
Cost of issuance				(88,000)																				
Principal paid on long-term obligations				-	(130,120)	(130,120)	(136,951)	(144,141)	(144,141)	(151,709)	(151,709)	(159,674)	(159,674)	(168,056)	(168,056)	(176,879)	(176,879)	(176,879)	(176,879)	(176,879)	(176,879)	(186,166)	(186,166)	
Interest paid on long-term obligations				(115,973)	(231,945)	(231,945)	(225,114)	(217,924)	(217,924)	(210,356)	(210,356)	(202,392)	(202,392)	(194,009)	(194,009)	(185,186)	(185,186)	(185,186)	(185,186)	(185,186)	(185,186)	(175,900)	(175,900)	
Net cash from capital and related financing activities	21,000	(540,000)	(97,973)	(97,973)	(597,065)	(597,065)	(333,065)	(333,065)	(324,065)	(316,065)	(316,065)	(509,065)	(509,065)	(305,065)	(305,065)	(293,065)	(293,065)	(293,065)	(293,065)	(293,065)	(293,065)	(760,065)	(760,065)	

CASH FLOWS FROM INVESTING ACTIVITIES

Interest on investments		1,500	1,500	5,600	2,900	2,900	4,500	4,500	6,300	8,100	8,100	7,400	7,400	10,100	10,100	13,300	13,300	13,300	13,300	13,300	13,300	9,800	9,800
NET INCREASE (DECREASE) IN CASH	308,400	(210,620)	(210,620)	277,956	(180,349)	(180,349)	106,655	106,655	115,767	124,203	124,203	(48,273)	(48,273)	179,611	179,611	215,315	215,315	215,315	215,315	215,315	215,315	888,663	888,663
CASH, BEGINNING OF YEAR	-	308,400	308,400	97,780	375,736	375,736	195,386	195,386	302,041	417,808	417,808	542,011	542,011	493,738	493,738	673,348	673,348	673,348	673,348	673,348	673,348	888,663	888,663
CASH, END OF YEAR	308,400	97,780	97,780	375,736	195,386	195,386	302,041	302,041	417,808	542,011	542,011	493,738	493,738	673,348	673,348	888,663	888,663	888,663	888,663	888,663	888,663	654,338	654,338

Rather than speculate on grants in the forecast, any grant funding can be applied to projects in Priority 1 or 2 that are not scheduled for funding in Table 3.

The forecast assumptions assume a 2.5 percent per year growth in the amount of impervious surfaces that are billable. The amount of square footage that is billable is explained in the next section of the report. Also, explained below is the discussion of how we arrived at the forecast of storm water rates. They begin at \$5.00 per month per single-family house and \$0.002 per square foot for all multiple family and non-residential uses, excluding City properties (city hall, parks, and public works).

The system development charge is developed in a separate report and begins at \$2,000 single-family house and \$0.73 per square foot of impervious surface for multiple family and all non-residential developments excluding City properties.

Operating costs are forecast to increase at the same rates as those for the City's other utilities—sewer and water. The cost of capital improvements increases at 4.5 percent per year. And the City expects to send \$192,000 per year beginning in 2010 to repair and replace existing storm water infrastructure.

The cash flow forecast shows the financial consequences of the planned capital improvements schedule, operating costs, receipts from customers, SDC revenues, and of one financing. The financing is for \$4.418 million in fiscal year 2011-12 at 5.25 percent interest and a term of 20 years. It also includes an amount equal to 2 percent of the bond amount for bond issuance costs. The annual debt service is approximately \$362,000. The City may obtain better terms than this forecast by extending the term to 25 years, or by applying to the State of Oregon for a direct loan.

These cash flows result in a growing cash balance at the end of each year through about fiscal year 2014-15. After that time the City alternatives between accruing cash reserves and making capital improvements. The cash balance is kept above \$500,000 in anticipation of some projects on the CIP that may be needed before 2020.

PROPOSED STORMWATER RATES

In general, the monthly storm water rate equals a portion of total annual cost of owning and operating the storm sewer system divided by the total amount of billable square feet of impervious surface divided by 12 months. Total annual costs are adjusted to account for system development charges and proceeds from new debts issued to make capital improvements. This adjusted amount is the amount of revenue required to be collected from the storm water rate applied to all storm water customers.

Equation 1

$$\text{Monthly Storm Water Rate} = \frac{\text{Revenue Requirement}}{\text{Total Square Feet of Billable Impervious Surface} / 12 \text{ Months}}$$

In this equation, the Total Annual Cost equals total expenses, plus annual debt service on outstanding debts, plus an amount for Annual Capital Replacement, plus an amount for cash acquisition of capital improvements not covered by the system development charge. Table shows the forecast of annual revenue requirements. Notice that the last item in the revenue requirements is positive or negative depending on whether the net income is positive or negative. A positive number means that cash is being saved for future capital improvements and a negative number indicates that money is being spent on CIP projects. The future storm water rates are based on the monthly average total revenue requirements. This forecast of costs to be recovered from storm water rates is divided by the total number of users' impervious surface to calculate the storm water rate.

For this initial analysis of storm water rates, we have to estimate the billable impervious surface. Impervious surface is all area covered by the footprint of the building, driveways, hard-surface parking lots and turning areas, private hard-surface walkways (excluding the sidewalks in public rights of way), and bare earth covered by a permanent roof. Impervious surface is land that no longer absorbs precipitation naturally.

The storm water master plan measured all of the impervious surfaces—public and private. The City currently has approximately 53.5 million square feet of impervious surface, however, only the impervious surface on private property is billable. To determine this amount, EFA surveyed a number of cities in Oregon that have established storm water user rates and extrapolated that data to Stayton based primarily on population. On average, a city in our survey has about 3,629 square feet of private impervious surface per single family housing unit. That multiplied by the number of single family houses in Stayton, 2,841, results in an estimate of 16.6 million square feet of private impervious surface. In the forecast, EFA uses the 16.6 million square feet as the Total Square Feet of Billable Impervious Surface in Equation 1, above.

To implement the rate, the City will have to “measure” the amount of impervious surface per customer. In the forecast, EFA assumes the City will use an average square footage per single family housing unit, and review tax assessment records to determine the square footage for multiple family and non-residential users. After these measurements have been made, the City will adjust the initial storm water rate presented in this report to produce the amount of revenue required to fund the utility. The estimates presented here are adequate for planning purposes and are likely to require only minor adjustment.

In the forecast, EFA assumes the private impervious surface will increase at the same rate as the population growth, 2.5 percent per year. For the initial rate the City has chosen to peg the rate for a single family residence at \$5.00 per month and assumes a house has impervious surfaces of 2,500 square feet.

This area is an average of the footprint of the buildings, plus the driveway(s), and impervious patio areas on site. The rate per square foot for multiple family and all non-residential uses is \$0.002 per square foot (\$5.00 / 2,500 square feet) or \$2.00 per 1,000 square feet of impervious surface.

This rate is approximately at the bottom of the top quartile of cities surveyed. After the first year, the forecast assumes the rate will increase \$0.50 per single family house (\$0.0002 per square foot) each year for the following 2 years, then by \$0.25 per single family house (\$0.0001) until it reaches \$6.75 per single family house (\$0.0027 / sq. ft.) in fiscal year 2013-14.

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Table 6 Total Annual Revenue Requirements

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Annual Revenue Requirements	422,400	473,880	527,328	582,816	617,220	629,532	642,168	679,392	717,576	731,844	772,200	772,200
Operating Costs	121,900	131,000	141,000	152,000	163,000	175,000	188,000	202,000	217,000	234,000	252,000	252,000
Annual capital replacement	192,000	201,000	210,000	219,000	229,000	239,000	250,000	261,000	273,000	285,000	298,000	298,000
Debt Service	-	-	115,973	362,065	362,065	362,065	362,065	362,065	362,065	362,065	362,065	362,065
Savings for (Acquisition of) CIP	108,500	141,880	60,355	(150,249)	(136,845)	(146,533)	(157,897)	(145,673)	(134,489)	(149,221)	(139,865)	(139,865)
Total Annual Revenue Requirements	422,400	473,880	527,328	582,816	617,220	629,532	642,168	679,392	717,576	731,844	772,200	772,200

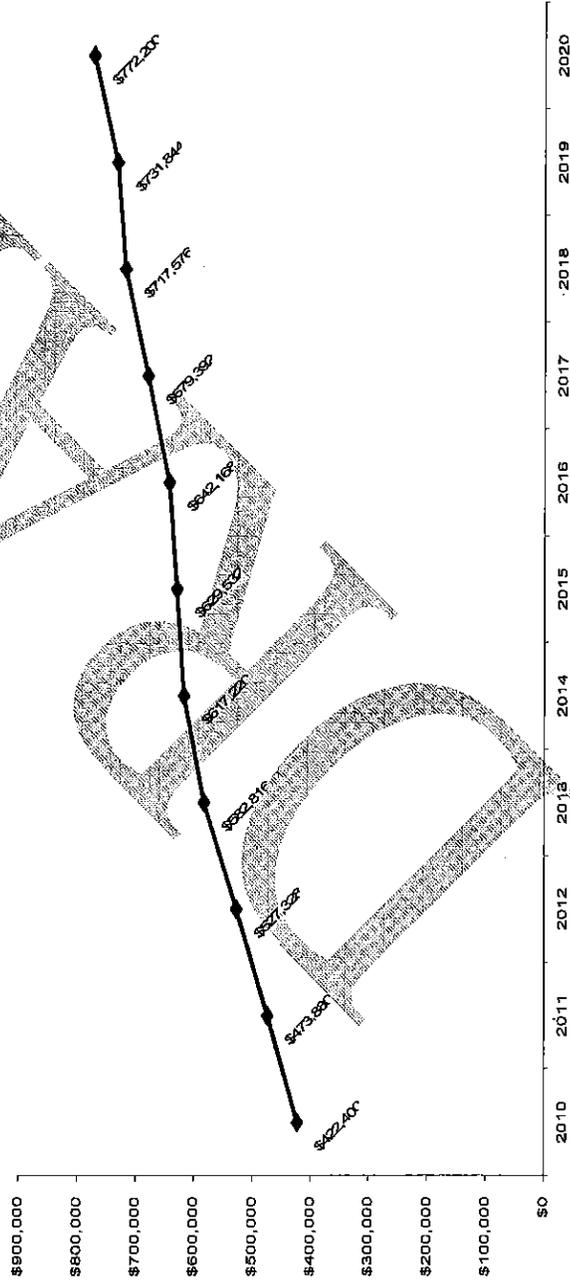


Table 7 Stormwater Rate Comparison, Oregon Cities

City / Agency	Monthly Storm Water Fee Single-family house	Rank
Gresham	\$7.65	1
Fairview	\$7.43	2
Independence	\$5.35	3
Stayton - proposed	\$5.00	4
Corvallis	\$4.98	5
Clean Water Services (Urban Washington County)	\$4.00	6
Oregon City	\$4.00	6
West Linn	\$3.94	8
Wilsonville	\$3.72	9
Roseburg	\$3.35	10
Newberg	\$3.29	11
Troutdale	\$3.24	12
Keizer	\$2.70	13
Lafayette	\$2.62	14
Salem	\$2.56	15
Molalla	\$2.00	16
Average	\$4.11	

APPENDIX A

Program Name	Overview	Potential Application to Stayton's Stormwater Master Plan
<u>Access & Habitat Program, Oregon Department of Fish & Wildlife</u>	To qualify for A&H funding, a project must improve wildlife habitat and/or increase public hunting access to private land. A&H activities are designed to be grassroots, in nature and encourage cooperative working relationships...	This funding could be used for the wetland preservation or riparian creation along detention swales if it can be shown to improve wildlife habitat
<u>Bonneville Environmental Foundation Watershed Program</u>	BEF supports only long-term (10-year) and monitoring-intensive Model Watershed restoration programs. In selected Model Watersheds, BEF provides 10-year funding to support monitoring and assessment activities, long-term oversight, and the services of an i...	Can be used to fund TMDL implementation Plan water quality monitoring and BMP implementation because it is part of the Willamette Basin restoration.
<u>Bullitt Foundation - Aquatic Ecosystems Program</u>	The mission of The Bullitt Foundation is to protect, restore, and maintain the natural physical environment of the Pacific Northwest for present and future generations. The Foundation invites proposals from nonprofit organizations that serve Washington, O...	Can be used for water quality measures or possibly for wetland. Cannot be used for land acquisition.
<u>Bullitt Foundation - Training, Communications, and Unique Opportunities</u>	The mission of The Bullitt Foundation is to protect, restore, and maintain the natural physical environment of the Pacific Northwest for present and future generations. The Foundation invites proposals from nonprofit organizations that serve Washington, O...	Could be used for the purchase of water quality monitoring samplers or other technology needs related to the master plan implementation.
<u>Clean Water State Revolving Fund Loan Program - Oregon</u>	The Clean Water State Revolving Fund (CWSRF) Loan Program provides low-cost loans for the planning, design and construction of water pollution control facilities and activities. Oregon's DEQ is committed to working with Oregon communities to attain or mai...	Can be used to fund non-point source pollution reduction strategies in the implementation plan.
<u>Drinking Water Protection Loan Fund (DWPLF) - Oregon</u>	The Safe Drinking Water Act, as amended in 1996, established the Drinking Water State Revolving Fund (DWSRF) to make funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and...	This loan might be applicable to stormwater activities that reduce pollutant loading to surface or ground water used for drinking water.
<u>Environmental Monitoring for Public Access and Community Tracking (EMPACT) Grants EPA</u>	The goal of EMPACT is to provide public access to clearly communicated, time-relevant, useful, and accurate environmental monitoring data in an ongoing and sustainable manner in 86 of the largest U.S. metropolitan areas. Projects may address clean air, cl...	Could be used for the purchase of water quality monitoring samplers.
<u>Environmental Systems Research Institute (ESRI) Conservation Program</u>	ESRI provides donations and discounts of Geographic Information Systems (GIS) software, data, books, and training to	Could get training and software for GIS system expansion for continued

Program Name	Overview	Potential Application to Stayton's Stormwater Master Plan
	non-profits, governments, and other eligible groups....	stormwater mapping.
<u>FishAmerica Foundation</u>	The Fish America Foundation's mission is to provide funding for local, hands on-projects to enhance fish populations, restore fisheries habitat, improve water quality, and advance fisheries research in North America to increase the opportunity for sports....	Could be used for portions of the master plan shown to improve the water quality to fish habitats such as the Mill Creek or the North Santiam.
<u>Flood Mitigation Assistance Program, FEMA</u>	FMA provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). Th...	Can be used for general capital improvement funding that mitigates flooding risks.
<u>General Purpose Grants - M.J. Murdock Charitable Trust</u>	The Trust's mission is to enrich the quality of life in the Pacific Northwest by providing grants to organizations that seek to strengthen the region's educational and cultural base in creative and sustainable ways. Although major emphases are education...	Projects shown to enhance the quality of life - especially for youth. This could aid in funding a youth internship for water quality monitoring or restoration projects. This would fill public education requirements of the NPDES phase II program.
<u>Hatfield Restoration Program, Oregon</u>	Former U.S. Senator Mark O. Hatfield established the Upper Klamath Basin Working Group (UKBWG) to address ecosystem restoration and water quality, economic stability, and drought impacts. Funding is available for projects which address watershed restoration... AREAS OF INTEREST: • Early childhood development and youth education, with an emphasis on children at-risk. • Environmental stewardship, with an emphasis on rivers and their watershed ecosystems. • Peacemaking activities, with an emphasis on teaching p...	Applicable to watershed restoration projects.
<u>Jubitz Family Foundation</u>		River and watershed ecosystem projects such as the wetlands, erosion prevention, riparian management etc.
<u>Land and Water Conservation Fund - Oregon</u>	Land & Water Conservation Fund grant funds may be used for the acquisition and development of state and local facilities that provide recreational opportunities. Recreation enhancement may be accomplished through the preservation of open space, forests, ...	Could be used for detention facilities that double as recreational facilities.
<u>Lawrence Foundation, The</u>	The Lawrence Foundation makes contributions and grants to organizations that are working to solve pressing educational, environmental, and health issues....	General applicability to stormwater improvements funding
<u>Nonpoint Source Implementation Grant (319) Program - Oregon</u>	Section 319 of the 1987 Clean Water Act authorizes grants for implementation of nonpoint source pollution control programs	Non-point source bmp funding

Program Name	Overview	Potential Application to Stayton's Stormwater Master Plan
<u>Oregon Wildlife Heritage Foundation</u>	and projects to help protect or improve water quality. The Department of Environmental Quality, the state agency authorized to carry...	Projects shown to enhance fish and wildlife habitats
<u>Pacific Grassroots Salmon Initiative, National Fish and Wildlife Foundation</u>	The mission of the Oregon Wildlife Heritage Foundation is to initiate, organize, and support projects through public and private partnerships that benefit Oregon's Fish and Wildlife...	If salmon are in either the Mill Creek or N. Santiam, projects improving the quality of those rivers may qualify for funding.
<u>Partnership Planning Grants for Economic Development Districts, Indian Tribes, & Other Eligible Area</u>	The PGSI seeks to catalyze and support salmon-friendly activities at the local, grassroots level in west-coast states of California, Oregon, and Alaska. The initiative will benefit native anadromous fishes and their aquatic and riparian habitats through p...	Implementation of some of the stormwater improvements both enhance the city and provide permanent jobs.
<u>Pedestrian & Bicycle Facility Improvement Grant Program</u>	Planning grants provide support for the formulation and implementation of local economic development programs as well as strategies designed to create and retain permanent jobs and income, and provides new employment opportunities in economically distressed...	This could be used in conjunction with regional detention facilities that double as parks, walking paths, and recreation sites.
<u>PGE Foundation</u>	Oregon's Bicycle and Pedestrian Program provides funding for bicycle and pedestrian improvements. ...	General applicability to stormwater improvements funding
<u>Plum Creek Foundation</u>	The Foundation's giving interests include art and humanities, civic and public affairs, education, the environment, health and social services. The Foundation seeks to preserve and enhance environmental quality throughout Oregon. We support a variety of ...	Applies to community development, parks and recreation facilities, and public education portions of the master plan or TMDL implementation plan.
<u>Recreational Trail Program (RTP) Grants - Oregon</u>	The Plum Creek Foundation is the major channel of philanthropy for Plum Creek Timber Company, Inc. and its subsidiaries. The Plum Creek Foundation has been established to provide a philanthropic contribution program to support and improve the general well...	Applies to trails as related to parks and detention facilities
<u>Renewable Energy Program, Bonneville Environmental Foundation</u>	The RTP is a Federal-aid assistance program to help States provide and maintain recreational trails for both motorized and non-motorized trail use. The program provides funds for all kinds of recreational trail use, such as pedestrian use, which includes	Applies to watershed restoration facets of stormwater master plan or TMDL IP

Program Name	Overview	Potential Application to Stayton's Stormwater Master Plan
<u>Watershed Restoration Grant Program</u> <u>OWEB</u>	<p>new sources of renewable energy. Funding for these efforts has been provided in a way that would be called unusual for most foundations...</p> <p>OWEB focuses on projects that approach natural resources management from a whole-watershed perspective. OWEB encourages projects that foster interagency cooperation, include other sources of funding, provide for local stakeholder involvement, include youth...</p>	<p>Applies generally to the stormwater master plan</p>

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Appendix G.2

Storm Water Grants



KELLER
associates

Stayton, OR
Storm Water Master Plan
Potential Funding Sources

Program Name	Overview	Potential Application to Stayton's Storm Water Master Plan
Access & Habitat Program, Oregon Department of Fish & Wildlife.	To qualify for A&H funding, a project must improve wildlife habitat and/or increase public hunting access to private land. A&H activities are designed to be grassroots in nature and encourage cooperative working relationships....	This funding could be used for the wetland preservation or riparian creation along detention swales if it can be shown to improve wildlife habitat
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Stayton, OR
Storm Water Master Plan
Potential Funding Sources

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Oregon Wildlife Heritage Foundation	The mission of the Oregon Wildlife Heritage Foundation is to initiate, organize, and support projects through public and private partnerships that benefit Oregon's Fish and Wildlife....	Projects shown to enhance fish and wildlife habitats
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Renewable Energy Program, Bonneville Environmental Foundation	The Bonneville Environmental Foundation (BEF) was founded in 1998 to support watershed restoration programs and develop new sources of renewable energy. Funding for these efforts has been provided in a way that would be called unusual for most foundations...	Applies to watershed restoration facets of storm water master plan or TMDL IP
Watershed Restoration Grant Program, OWEB	OWEB focuses on projects that approach natural resources management from a whole-watershed perspective. OWEB encourages projects that foster interagency cooperation, include other sources of funding, provide for local stakeholder involvement, include yout...	Applies generally to the storm water master plan



Appendix H

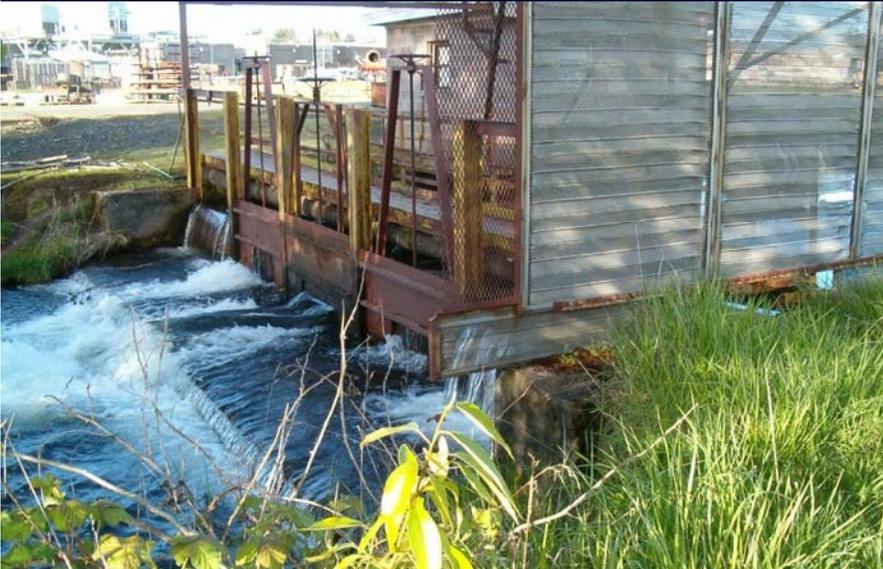
TMDL Implementation Plan



KELLER
associates

Stayton, Oregon Willamette Basin TMDL Implementation Plan

February 2009





Oregon

Theodore R. Kulongoski, Governor

Department of Environmental Quality

Western Region - Salem Office

750 Front St. NE, Ste. 120

Salem, OR 97301-1039

(503) 378-8240

(503) 378-3684 TTY

January 28, 2009

Page 1 of 2

Dave Kinney
Public Works Director
City of Stayton
362 N. Third Avenue
Stayton, OR 97383

JAN 30

Re: Willamette River Basin TMDL Implementation Plan

Dear Mr. Kinney:

The Oregon Department of Environmental Quality (DEQ) has reviewed the November 2008 *Stayton, Oregon Willamette Basin Total Maximum Daily Load (TMDL) Implementation Plan* prepared by Keller Associates. The DEQ appreciates the amount of work that went into this plan by the City of Stayton with the assistance of Keller Associates. The plan meets the intent and requirements for the development of TMDL implementation plans as specified in Oregon Administrative Rule 340-042-0080 (3) and we would like to approve the plan for implementation at this time. We do have some comments, however, that we would like to convey to the City of Stayton to be considered as part of an adaptive management framework.

As Stayton proceeds with implementation, we think it would be helpful to expand upon the stormwater controls measures and evaluate existing riparian conditions. Some measures related to the above that would support the TMDL reductions for Stayton to consider include:

1. Assessment and analysis of current riparian conditions to confirm existing conditions within the first year and identify sites for restoration [ex., riparian setbacks in place being adhered to; areas that don't meet the setback requirement; areas where new development is proposed; establish when 50 feet is sufficient based on the quality and quantity of vegetation; establish list of priority projects and areas along the riparian corridors that would benefit from shade canopy (temperature) and native understudy (erosion and temperature)].
2. Implement additional best management practices supportive of pollution prevention in municipal operations for roads, parks, and city maintenance shops. For example, reduce sediment reaching Mill Creek and North Santiam through overland flow.

January 28, 2009
Kinney

Page 2 of 2

3. Assess planning and building ordinances for barriers to post construction development and redevelopment supportive of TMDL reductions. As Stayton proceeds with developing and implementing Post Construction Stormwater Management, in addition to riparian preservation section 3 requirements, consider such things as, low impact development, stormwater treatment, "green building," and maintenance of hydrology as key structural and source control strategies.
4. Provide a link for the City of Stayton website and include water quality topics on the website.

For clarification purposes, DEQ would also like to submit the following comments pertaining to the plan at this time:

Page 5-1 and 5-2: 5.3 NPDES Phase II Six Minimum Control Measures
10,000 should be 50,000.

We would like to check in with you on an annual basis to assess the TMDL implementation process and the status of the measures contained in your BMP tracking matrix. The matrix is designed with the annual reporting requirement in mind and we believe that it is well-suited for tracking progress overtime. We feel that the annual review process will facilitate adaptive management and the five year reviews.

Stayton's first annual report will be due the last week of September 2009, and should cover February 2009 through August 2009. Stayton's first fifth year report will be due the last week in September 2013, and should assess implementation efforts from February 2009 through August 2013.

Please feel free to contact me at 503-378-5073 or via e-mail at gramlich.nancy@deq.state.or.us should you have any questions related to TMDL Implementation. Thank you for your effort on the development of Stayton's TMDL Implementation Plan. We look forward to your continued involvement in TMDL Implementation efforts in the Middle Willamette and North Santiam Subbasins, and to your ongoing commitment to improving water quality conditions.

Sincerely,



Nancy Gramlich
Willamette Basin Coordinator

cc:
Roland Rocha, Keller Associates
Don Eubank, City of Stayton

City of Stayton, Oregon
Willamette Basin TMDL Implementation Plan – Agency Review
February, 2009

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Chapter 3: Management Strategies

Chapter 4: Plan Review and Reporting

Chapter 5: Additional Elements

Chapter 6: Implementation Plan Summary

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- Tracking Matrix
- Figure 1: Discharge Locations

Appendix B:

- Land Use Compatibility Statement

Chapter 1 INTRODUCTION

1.0 General

As part of a watershed approach to water quality problems, the State of Oregon is in the process of developing a Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP) for each water body that does not meet specific water quality standards. The Willamette River is among these water quality impaired bodies of water for parameters of temperature, mercury, and bacteria.

The United States EPA approved the Willamette River Basin TMDL (WB-TMDL) On September 29, 2006. In the WB-TMDL, the City of Stayton is listed as a Designate Management Agency (DMA) because it is bordered by Mill Creek and North Santiam River which are Willamette River tributaries. As a DMA, Stayton is responsible for water quality within its jurisdiction and is required to submit a TMDL Implementation Plan to the Oregon Department of Environmental Quality under Oregon Administrative Rule 340-042-0080(3).

This report provides a comprehensive description of Stayton's ongoing and planned efforts to reduce targeted pollutant loadings in accordance with the WB-TMDL.

1.1 TMDL Implementation Plan Objective

The objective of Stayton's implementation plan is to fulfill all requirements designated in the Oregon State TMDL Rule 340-042-0080(3). To meet these requirements, the implementation plan must:

- Identify the management strategies which will be used to achieve load allocation and reduce pollutant loading
- Provide a timeline for implementing the management strategies
- Provide target completion dates for benchmarks in implementing the management strategies
- Provide for performance monitoring with a plan for periodic review and revision
- Provide evidence of compliance with applicable statewide land use requirements
- Provide any other elements as specified in the WQMP

The following chapters in this report specify how the City of Stayton plans to meet these requirements. The final chapter provides a general summary of the implementation plan including a progress tracking matrix for annual reporting and review.

1.2 Related Documents

Through prior efforts, the city has recently completed a Storm Water Master Plan. The Storm Water Master Plan addresses water quality issues, and contains preliminary plans anticipating both the TMDL implementation and the NPDES phase II program. This implementation plan is consistent with these master plan elements, and the master plan provides much of the background and supporting data for the implementation plan.

1.3 Acknowledgements

Key to the present and ongoing success of water quality efforts in Stayton are the citizens of Stayton, the employees of the Stayton City Public Works Department; Michael Faught, Public Works Director; Members of the Stayton City Council, and the Oregon Department of Environmental Quality.

Chapter 2 EXISTING CONDITIONS

2.0 General

The City of Stayton is proactive in its efforts to improve water quality. The city has recently completed a Storm Water Master Plan outlining significant capital improvement projects, and is currently working toward establishing a storm water program aimed at positioning the city to meet future state and federal requirements. This chapter summarizes the city's current status with regard to the applicable Statewide Land Use Goals, and current storm water quality conditions.

2.1 Oregon Statewide Land Use Goals

In 1973 the Oregon State Legislature established statewide standards to be used by local government agencies in land use planning. The intent of the standards was to protect Oregon's natural resources and promote economic development. The Department of Land Conservation and Development (DLCD) was created at that time to be the administrative agency to manage these standards.

Over time, these standards have evolved into a set of 19 Land Use and Planning goals covering everything from Citizen Involvement to the preservation of Ocean Resources. As not all of these goals directly apply to the WB-TMDL, DEQ has shown interest in the position of Stayton in relation to Statewide Landuse and Planning Goals 5 and 6 because these are the pertinent sections with regard to the Implementation Plan.

Statewide Planning Goal 5 is to protect natural resources, and conserve scenic and historic areas, and open spaces. In correlation with this goal, local governments are to adopt programs that will achieve this goal. Part of this is to inventory riparian corridors and establish policies to protect them.

Statewide planning Goal 6 is similar to Goal 5 in that the objective is to maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges cannot exceed the carrying capacity of the water resources nor degrade nor threaten them.

The city's comprehensive plan was revised in April 2006, and addresses all of statewide land use goals. The comprehensive plan has been acknowledged by the Department of Land Conservation and Development to be compliant with the state wide goals. The city's ongoing land use practices, permitting practices, and development code are consistent with the land use goals and the proposed management strategies in the implementation plan. A letter from the Stayton City Planner has been included in Appendix B, which states the city is in compliance with Statewide Land Use Goals (Goals 5&6 in particular). Furthermore, the

proposed TMDL Implementation Plan is consistent with the city’s comprehensive plan to the extent required by law.

2.2 Existing Water Quality

Stayton’s TMDL efforts focus on the waters within the city’s jurisdiction which includes the Salem Ditch (also known as the Stayton Ditch), the North Santiam River, Mill Creek, and the Power Canal.

The majority of the city’s urban impact is on the Salem Ditch, which travels east to west along the south border of the city, then turns north and runs along the city’s west border ultimately discharging to Mill Creek in the northwest corner of the city limits. Figure 1 in Appendix A identifies the ultimate discharge locations for the various portions of the city’s storm system.

Because the majority of the stormwater discharges to the Salem Ditch, the ditch provides an opportunity to test the net impact of the stormwater discharge on water quality.

In March of 2007, four storm water samples were collected from two points in the Salem Ditch upstream of Stayton, and two points downstream of Stayton. The samples were taken during a rain event and were tested for Biochemical Oxygen Demand, Chemical Oxygen Demand (COD), Orthophosphate-phosphorus, Specific Conductivity, Total Solids, Total Suspended Solids (TSS), Turbidity, Hardness, pH, Phosphorus, and E coli.

The water quality test results specific to the WB-TMDL target pollutants have been summarized in Table 2.1. The TMDL targets are basin-wide targets and are not specific to Stayton, but they serve as comparison basis for the city.

No data was collected on the temperature, but mercury and bacteria were tested. No mercury was detected, and bacteria increased by 8.5 mpn/100 ml. More testing over an extended period would be necessary before any firm conclusions can be drawn on the storm water quality, but initial testing appears to indicate the city’s overall impact in relation to the WB-TMDL is relatively light.

Table 2.1 TMDL Targets vs. Existing Conditions

Water Quality Parameter	WB-TMDL Target	City Inlet	City Outlet
Temperature	Mill Creek: 18°C* North Santiam: 18°C*	No Data	No Data
Mercury	27% Reduction	None Detected	None Detected
Bacteria	80% Reduction	6.3 mpn/100 ml	14.8 mpn/100 ml

*Target temperatures for summer months

Chapter 3 MANAGEMENT STRATEGIES

3.0 General

This chapter discusses the general strategies the city will implement to reduce pollutant loads. The methods for assessing the effectiveness of these strategies are discussed in Chapter 4. Fundamentally, these strategies are designed to focus efforts on activities that will result in the maximum reduction of pollutants given the city's limited resources.

3.1 Management Strategies

The following sub-sections describe Stayton's management strategies for reducing temperature, mercury, and bacteria. Some of the strategies are already in place, and have been identified in their scheduled implementation as 'ongoing'. Strategies that have been selected as part of this plan to fill the gaps have specific implementation dates as chosen by the city according to the resources available. The strategies, along with the benchmarks and schedules are summarized in the Tracking Matrix in Appendix A.

3.1.1 Temperature

The WB-TMDL has established a temperature TMDL to create a healthier environment for salmon and trout species found in the Willamette Basin. There is not one target temperature for the entire basin, because the optimum temperatures vary by location according to the fish habitat designation for the area. DEQ would like to see efforts from Stayton to address temperature concerns through protection, restoration, or creation of riparian vegetation. The Oregon State DEQ does not recognize storm water as a source of temperature loading for the purposes of the temperature TMDL.

Because storm water runoff from the city is not recognized by DEQ as a source of temperature loading in the rivers, direct solar radiation on the water bodies within Stayton's jurisdiction is the primary source for temperature loading. The effects of temperature loading can be minimized if the water in the river is deep and well shaded.

The depth of the water is affected by two factors, namely, flow volume and the channel shape. During the summer months, when solar radiation is at a peak, the flow in the river and the runoff volume from the city is typically low. Under this scenario, any flow added to the river from the city's storm water system will help lower the stream temperatures because it will provide additional volume to the river and it will typically be cooler because it is piped underground prior to discharging to the river.

The second factor affecting the depth of the water in the river channel is the shape of the channel. The channel shape can be negatively affected through erosion. Erosion is more likely to occur where the channel banks are bare and unstable. As banks erode, the shape of the channel tends to be wide and flat, therefore reducing the water depth and increasing the impact of solar radiation. Riverbank vegetation or structural stabilization measures prevent channel erosion and promote a deeper channel resulting in cooler water temperatures. Bank vegetation not only prevents erosion, but can provide shading if the vegetation consists of trees.

In an effort to improve water quality in the North Santiam River, the City of Stayton recently completed a stream bank tree planting project. In September of 2007, the city planted 3,200 Willow Tree cuttings. The project improved approximately 18,000 square feet of the river's north bank south of Stayton.

The city's land use development code also contains provisions that require 50 foot riparian setbacks as a measure of protecting the riverbanks and promoting stream health. This code will continue to promote cooler water temperatures as the city develops beyond its current limits. The city's goal is to continue the practice of enforcing the existing land use code through the development review and approval process.

In addition to setback requirements, Sections 17.16.090 and 17.20.80 specifically protects trees and other vegetation in riparian corridors.

The city has also formed an active partnership with North Santiam Watershed Council, and the Oregon Association of Clean Water Agencies (ACWA). This relationship will provide the city opportunities to take part in a watershed approach to water quality, and to partner with these agencies on future water quality projects similar to the recent riparian development project completed in September 2007. The city's goal is to stay involved with these groups by attending six meetings each year as a management strategy to address the temperature TMDL.

3.1.2 Mercury

Mercury is pollutant of concern because of its toxicity and its tendency to bioaccumulate. Bioaccumulation is the process by which a substance builds up in concentration in living organisms as they take in contaminated air, water, or food because the substances can only be metabolized very slowly. The toxic effects of mercury poisoning range from debilitation to death.

Mercury is a natural soil component common throughout the Willamette Basin, and soil erosion accounts for nearly half of all the mercury found in

the Willamette River and its tributaries. Automobile emissions, Dental fillings, light bulbs, and thermometers are a few of the common non-natural sources of mercury.

The City of Stayton has identified sediment in sediment laden storm water and air pollution as two primary sources of mercury loading in the surrounding waters. To address sediment carried by stormwater, the city will focus on reducing runoff from construction sites, and reducing sediment loads in stormwater through improved maintenance practices.

The city currently provides reminders to developers during preconstruction meetings to obtain 1200-C permits as required by the state. The city also reviews erosion control plans as part of the plan review process. The city's goal is to continue these practices to aid in the prevention of excessive sediment in stormwater runoff from construction sites.

1200-C permits address construction sites that are an acre or larger in area. There are not currently any regulations for sites less than an acre and the city recognizes such sites as a potential source for sediment erosion. As such, the city will consider adding language to existing codes and/or design standards.

To reduce sediment loading from stormwater, the city currently sweeps the streets on a regular basis. Downtown corridors are swept weekly, collectors are swept twice a month, and residential streets are swept monthly. The city's plan is to continue street sweeping and begin tracking completion of the street sweeping.

In addition to street sweeping, the city currently cleans all of their estimated 650 storm water catch basins annually. Cleaning the catch basins not only prevents trapped sediment from reentering the system, but also enables the basins to function properly and remove more sediment from the system. The city's goal is to continue cleaning all of the catch basins annually and track the number of basins cleaned.

As part of the stormwater master plan, the city has established a plan to begin pressure cleaning the storm water lines. There are approximately 15 miles of stormwater lines in the city. The plan is to clean the lines once every five years. This will prevent buildup, allow for proper function of the system, and remove excess sediment.

In addition to mercury carried in storm water sediment, the city realizes air pollution can contribute to mercury levels in surface waters. For this and many other benefits, the city supports a county commuter ride program. A large park-and-ride lot is located in the northeast end of the city. Commuter ride program information is also available at the public works office. The

goal in relation to this management strategy is to continue to support the commuter ride program.

An implementation schedule and measurable benchmarks are identified for each of these strategies in the Tracking Matrix in Appendix A.

3.1.3 Bacteria

Bacteria concentrations in water are typically measured by an indicator group of bacteria such as E. coli in units of Most Probable Number (MPN) per unit volume. Potential sources of bacteria include failing septic systems, leaking sewer lines, substandard wastewater effluent discharges, pet waste, livestock waste, duck feeding areas, and cross-connections.

Stayton has reviewed the potential sources of bacterial contamination and has determined that pet waste, poorly maintained sewer lines, and cross connections are the areas on which they will focus their management efforts.

The city has installed pet waste stations in local parks to encourage owners to clean up after their pets. The city plans to inventory these stations to determine quantities, locations, installation years and other data necessary to assess additional needs. The city will continue to stock and maintain the stations, as well as inventory the existing stations and assess additional needs.

The city currently cleans and inspects the sewer system periodically. The goal is to continue this practice and commit to a schedule of cleaning and inspecting every line once every five years. The anticipated outcome of this effort is well maintained lines that will prevent sewage leaking or overflowing and reaching the natural waters surrounding the city.

In reviewing the city codes and ordinances, it was discovered that there is nothing prohibiting storm drain and sanitary sewer cross-connections. As a result, a goal has been established to propose ordinance language prohibiting cross-connections.

The specific implementation schedules and benchmarks for each of these strategies are listed in the Tracking Matrix in Appendix A.

Chapter 4 PLAN REVIEW AND REPORTING

General

Tracking and reporting on the progress of the implementation plan is essential to its success because it provides the feedback necessary to make necessary adjustments. Adjustments are necessary over time due to changing needs or variances in field conditions.

As such, tracking and reporting have been included as part of the implementation plan to serve as tools to help the city achieve the plan objectives. This chapter presents the city's plan for tracking and reporting their progress on the implementation plan activities.

4.1 Implementation Tracking

Implementation tracking refers to keeping track of which of the planned activities have been implemented within their chosen timeline and which ones have not. It should be noted that the timelines for implementation are not regulatory, but rather City of Stayton will track and report on the progress of the planned TMDL Implementation Plan Activities – including interim steps necessary for the various benchmarks. The City will keep an internal inventory of progress towards completion of each of the activities listed on the tracking matrix throughout the year.

4.2 Effectiveness Tracking and Evaluation

Effectiveness tracking will focus on how beneficial the strategies are in relation to the time and effort required to implement them. The evaluation of this effectiveness in reducing pollutant loads will rely on city personnel performing adequate and timely data collection and analysis.

A record of the time and resources spent will be kept on each of the activities and will be compared to the measurable benchmark for the activity. For example, catch basin cleaning may cost an average of \$17 per catch basin, and result in an average of 2 lbs of sediment being removed from the system. This would allow the city to compare this activity with other activities for effectiveness resources required.

The effectiveness of activities such as public education are difficult to quantify, however activities themselves can be tracked as indicated in the tracking matrix. However, the intent in tracking the meetings is to measure the level of effort compared to a sense of its effectiveness which should be determined by those participating in the activities.

Central to the effectiveness evaluation will be the questions: “How well is this activity helping us reach our goal of pollutant reduction?”, “Can this activity be modified to be more effective?”, “Are there other activities that could be more beneficial?” Once the appropriate data is collected, the results will be evaluated on the basis of these questions.

The city will review the results of all effectiveness evaluations on an annual basis and consider possible alterations to the implementation plan if some activities prove to be ineffective. This internal review will be completed prior to the annual DEQ reporting. The city will also review and track interim steps being taken towards their benchmarks in the annual and five-year reviews.

4.3 Reporting

Oregon DEQ requires the city to report implementation progress annually. This reporting will be facilitated through the use of the tracking matrix presented in the previous chapter. The annual reporting will consist of filling out the status column with an appropriate indicator and submitting the matrix to DEQ. The annual and 5-year reports will also discuss interim steps being taken towards the various benchmarks. Any necessary minor adjustments may also be made at this time. In an effort to coordinate TMDL reporting with other reporting required of the city, they will report in September of each year after an internal review held in August starting in 2009.

4.4 Adaptive Management

As circumstances change, the needs and strategies related to this implementation plan will change. This may be due to changes within the city, state and federal regulations, or in the Willamette Basin itself. The City of Stayton will specifically revisit this implementation plan every five years. The city will also consider potential revisions or redirections that may be necessary as a result of DEQ’s revisions to the WB-TMDL. The first of these revisits will be in 2013. The reevaluation will include a review of existing tracking data and other information to evaluate the effectiveness of the plan relative to the pollution reduction goals.

Chapter 5 ADDITIONAL ELEMENTS

5.0 General

The WB-TMDL requires additional elements from the WQMP to be addressed by various communities according to their population designation. Because Stayton is considered by DEQ to be non-MS4 DMA, the additional requirements are not as extensive as those required of MS4 DMAs. This chapter addresses the additional elements required for the City of Stayton.

5.1 Public Involvement Plan

Stayton is required to include a public involvement element as part of the TMDL Implementation Plan. The city will implement the plan upon acceptance from DEQ, however, the city's plan is to involve the public through a public open house where the implementation plan will be presented to the public and City Council in within 60 days of DEQ's approval of the Implementation Plan.

As revisions to ordinances and standards are proposed during city council meetings which are open to the public, the public will have an opportunity to be further involved.

5.2 Fiscal Analysis

A fiscal analysis is required in order to identify the resources necessary to develop, implement, and maintain the plan components identified in this report. Given the absence of resources available for additional programs and practices, many of the plan elements have been selected on the basis of their minimal financial impact. Items such as policy implementation will cause an insignificant financial impact and will be absorbed into the regular operations budgets.

The more resource intensive components of the plan are to be integrated as part of the storm water master plan or other existing programs, and the funding will come from the utility or program budgets. For example, the storm water master plan components will likely be funded by a System Development Charge for new developments, and a utility for existing users which has been detailed in the Storm Water Master Plan.

5.3 NPDES Phase II Six Minimum Control Measures

Because Stayton is not currently a Municipal Separate Storm Sewer System (MS4) community, the city is not required to implement the Six Minimum Control Measures for mercury and bacteria reductions tied to the NPDES Phase II requirements. An MS4 designation is typically triggered by a population of

50,000, other urbanization indicators, or at DEQ's discretion. Stayton's population is currently estimated at 7,700.

However, as part of this implementation plan, DEQ has asked the city to consider these elements and determine which measures could feasibly be accomplished as part of the implementation plan. The Six Minimum Control Measures identified in Chapter 14 of the Willamette Basin Water Quality Management Plan are:

- 1) Pollution prevention in municipal operations
- 2) Public education and outreach on storm water impacts
- 3) Public involvement and participation
- 4) Illicit discharge detection and elimination
- 5) Construction site storm water runoff control
- 6) Post-construction storm water management in new development and redevelopment.

Each of these measures and the extent to which the city plans to address them is covered in the Tracking Matrix in Appendix A.

Chapter 6 IMPLEMENTATION SUMMARY

6.0 General

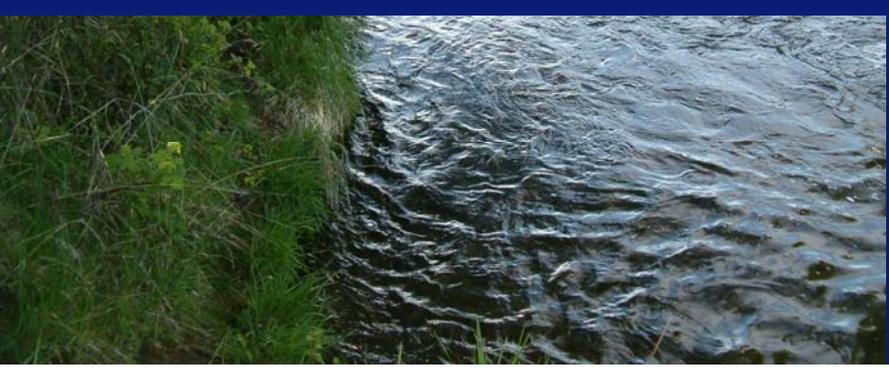
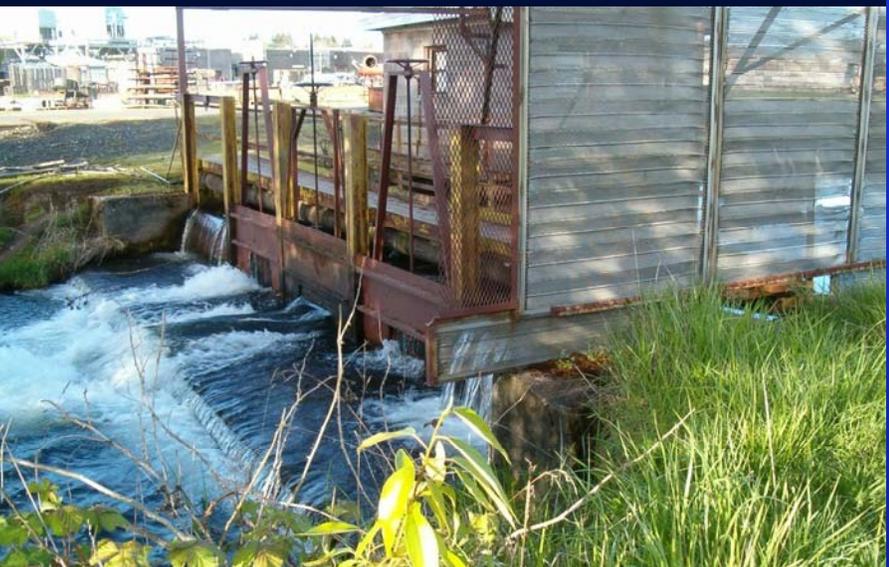
This chapter presents a summarized list of implementation actions in chronological order. This will serve as a quick planning and tracking reference for city personnel. However, this list is not intended to be comprehensive so the report and the Tracking Matrix should be consulted for more detail on the Implementation Plan and its elements.

6.1 Summary of TMDL IP Actions

Table 6.1 - Implementation Plan Actions

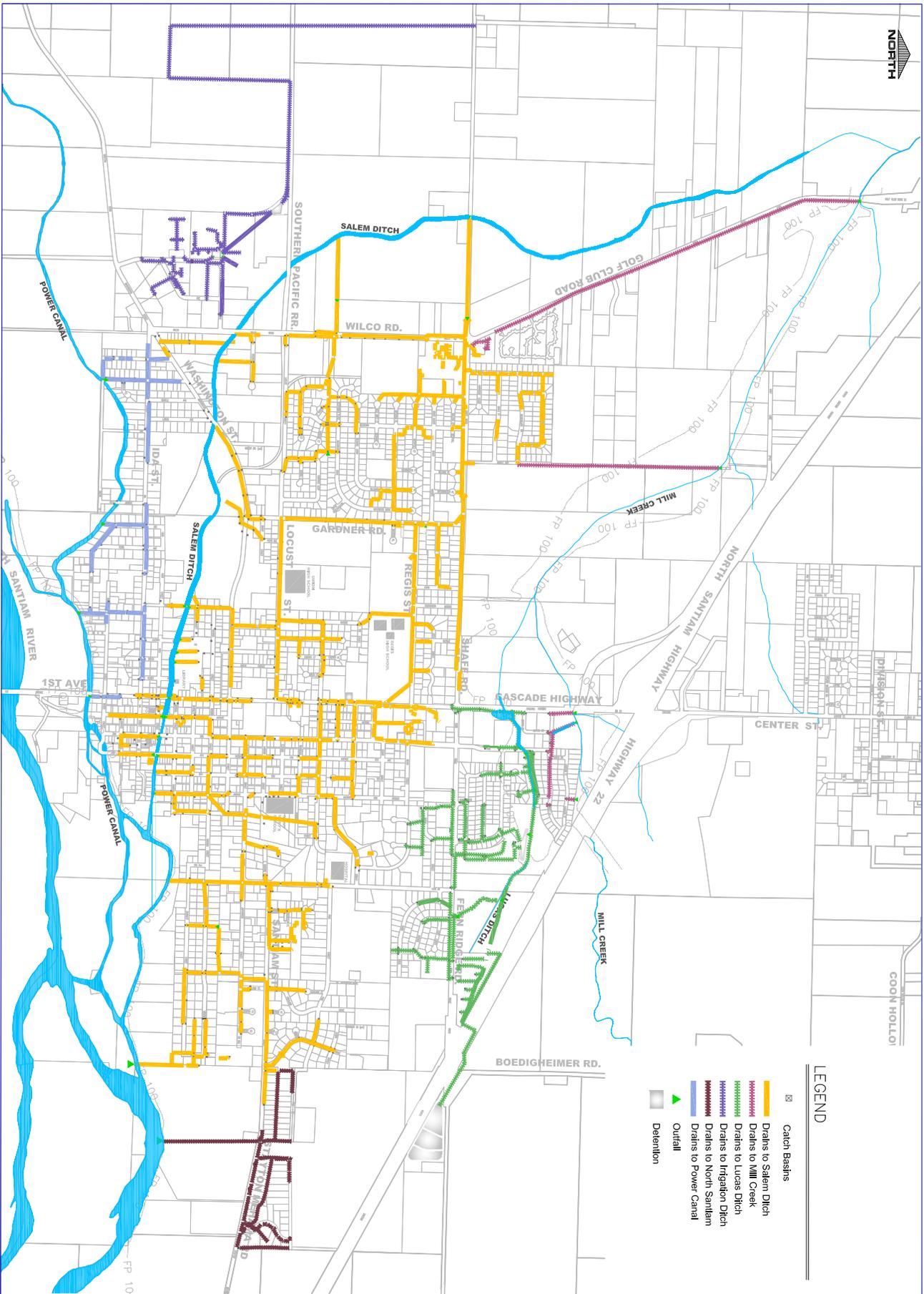
<u>Year</u>	<u>Action</u>	<u>Targeted Outcome</u>
2008	Present TMDL IP to Council and Public	Involve the public
(& Ongoing)	Review Sediment Erosion Control Plans	Reduce mercury loadings
	Remind developers to obtain 1200C permits	Reduce mercury loadings
	Maintain riparian setbacks	Reduce temperature and mercury loadings
	Support commuter ride program	Reduced mercury loadings
	Continue Watershed Council and ACWA Involvement	Remain current with local storm water issues, potential temperature reduction through riparian preservation or restoration projects.
	Street sweeping	Reduce mercury loadings
	Clean catch basins	Reduce mercury loadings
	Inspect 20% annually and repair damaged Sanitary Sewer lines as resources permit	Reduce bacteria loadings
	Visit riparian project site annually	Reduce mercury loadings
	Hold internal plan review	Maintain or adjust goals as necessary
	Fill out Tracking Matrix, send to DEQ annually	Keep DEQ informed on progress
2010	Clean storm water lines, Track % cleaned	Reduce mercury loadings
2012	Inventory and assess Pet Waste Stations	Reduce bacteria loadings
	Propose code/standard language for erosion control on construction sites < 1 acre	Reduce Mercury loadings
2013	Track Volunteer Coordination and Support	Improve existing benefits of volunteer efforts
	Propose Cross-Connection Control Language for new ordinance	Reduce bacteria loadings
	Complete 1 st 5-year TMDL IP review and coordinate with DEQ	Adapt management strategies changing conditions

Appendix A: Tracking Matrix and Figure



Implementation Plan Tracking Matrix

POLLUTANT	SOURCE	STRATEGY <small>What is being done, or what will be done to reduce or control pollution from this source</small>	HOW THIS WILL BE DONE	MEASURE <small>How implementation or completion will be measured</small>	TIMELINE <small>When this strategy will be implemented or completed</small>	BENCHMARK <small>The goal to be met within the indicated timeframe</small>	STATUS	
Temperature	Solar Radiation	Protect and promote healthy riparian areas	Sustain land use code which requires riparian setbacks	Track the number of development and redevelopment plans reviewed for conformance with riparian policy	Ongoing	100% of development and redevelopment plans		
			Review progress of riparian project along N. Saniam River	Are the trees growing?	Ongoing	Check the site annually		
Mercury	Sediment	Reduce sediment reaching Mill Creek and North Saniam through storm water	Work with other agencies on watershed solutions	Track number of coordination meetings attended annually	Ongoing	Attend 6 meetings annually		
			Maintain contact with ACWA and continue to participate with North Saniam Watershed Council	Track % of sediment erosion control plan checks performed as part of plan review process	Ongoing	100% of development and redevelopment plans		
			Ensure sediment erosion control plans are provided for development and redevelopment plans	Track % of meetings wherein a 1200-C permit reminder was provided	Ongoing	100% of preconstruction meetings involved a 1200-C permit reminder		
			Remind developers of 1200-C permit requirements in preconstruction meetings	Public works or Planning and Zoning to propose language to be considered for inclusion in existing codes and standards.	2012	Propose language for revised code		
			Consider adding language to existing city codes and/or design standards for erosion control on construction sites < 1ac	Track % of streets swept monthly	2008	Downtown 4/mo. Collectors 2/mo. Residential 1/mo		
			Perform regular street sweeping	Track % of catch basins cleaned annually	Ongoing	100% of catch basins cleaned annually		
			Clean catch basins annually	Track % of lines cleaned annually	2010	20% of storm lines cleaned annually		
			Clean storm lines once every 3 yrs	Brochures provided? Y/N	Ongoing	Brochures provided? Y/N		
			Support commuter ride program by providing information at Public Works Building	Continue support and use of pet waste stations at city parks. Inventory existing stations, and assess need for additional stations	2012	Report presented? Y/N		
			Air deposition	Reduce air pollution	Reduce municipal sewage reaching streams through surface water and groundwater pathways	Track % of lines cleaned and inspected in a report	Ongoing	20% of lines cleaned annually
Bacteria	Municipal Sewage	Reduce municipal sewage reaching streams through surface water and groundwater pathways	Detect and repair leaking city sewer lines as resources allow	Language proposed? Y/N	2010	Language Proposed? Y/N		
			Propose language in city code which prohibits storm system and sanitary sewer cross-connections					
Additional Elements Required from the VIB-WQMP	Six Control Measures for Mercury and Bacteria from NPDES Phase II Program	Pollution Prevention in Municipal Operations	See: Mercury-Air-Reduce Pollution-Commuter Ride information	See: Mercury-Air-Reduce Pollution-Commuter Ride information				
			Public Education and Outreach	Coordinate with Volunteer Groups	Begin tracking and report number of volunteer projects performed annually	2008	100% of City Coordinated Volunteer projects reported	
			Public Participation	Present TMDL IP to City Council for Approval	Presented? Y/N	2008	Presented? Y/N	
			Illicit Discharge Detection and Elimination	See: Bacteria-Sewages-Reduce-Cross-Connections	Map storm lines and outfalls	Completed in 2007		
			Construction Site Runoff Control	See: Mercury-Sediments-Stormwater Reduction->1200C, Erosion Control Plans				
			Post Construction Storm Water Management	See: Riparian preservation requirements in section 3 of Implementation plan.				

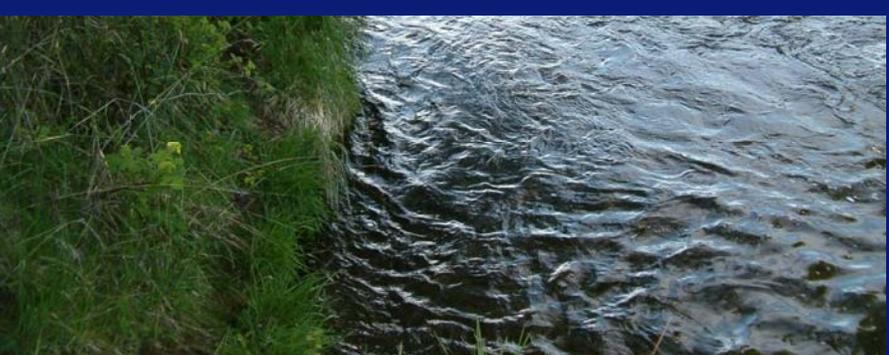
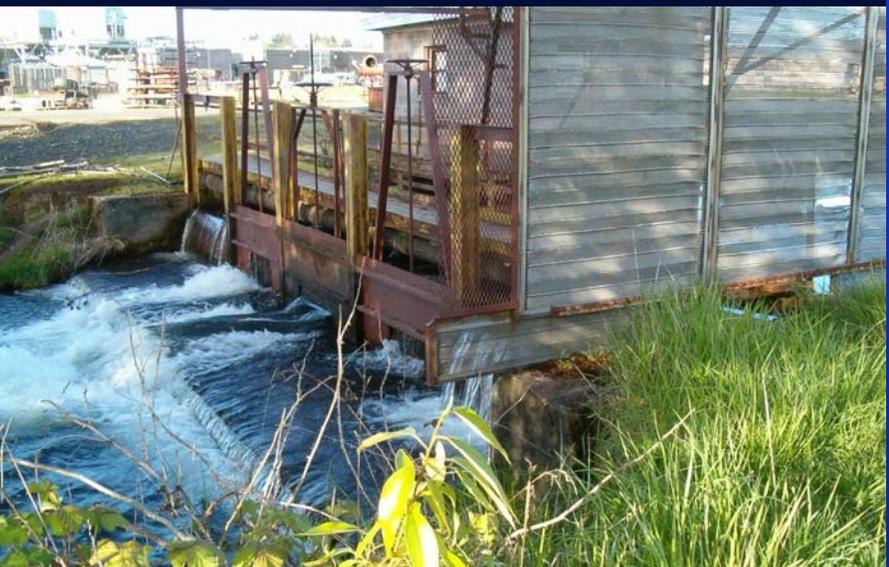


LEGEND

- ☒ Catch Basins
- ▬ Drains to Salem Ditch
- ▬ Drains to Mill Creek
- ▬ Drains to Lucas Ditch
- ▬ Drains to Irigation Ditch
- ▬ Drains to North Santiam
- ▬ Drains to Power Canal
- ▬ Outfall
- ▬ Detention



Appendix B: Land Use Compatibility





City of Stayton

Planning Department

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Email: dfleishman@ci.stayton.or.us

TO: Michael R. Faught, Public Works Director
FROM: Dan Fleishman, City Planner *DF*
SUBJECT: Compliance with Statewide Goals 5 and 6
DATE: December 6, 2007

You have asked for a memorandum regarding the City's compliance with Statewide Planning Goals 5 and 6. Oregon state law requires all municipal comprehensive plans and land use regulations to comply with 14 statewide planning goals. Compliance is assured by submittal of local plans and regulations to the Department of Land Conservation and Development for review and "acknowledgement." These two statewide planning goals address natural resource issues and can be summarized as the following.

Goal 5: To protect natural resources and conserve scenic and historic areas and open spaces.

Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability.

Goal 6: To maintain and improve the quality of the air, water and land resources of the state.

All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Generally, Stayton's Comprehensive Plan and Land Use and Development Code were initially drafted in the late 1970s. They were acknowledged by DLCD at that time as being compliant with the goals. Subsequent updates and amendments have also been acknowledged as compliant.

More specifically, Stayton's Comprehensive Plan inventories the significant natural, historic and cultural resources within the urban growth boundary and contains policies for their protection. The City has purchased tens of acres of open space for parks. The City's Land Use and Development Code contains provisions that require riparian setbacks and protection of wetlands. There are also two historic preservation districts and particular protection to buildings and sites identified in the comprehensive plan as historically significant.

The City has adopted a Parks and Recreation Master Plan that calls for the development of more park land to assure protect natural resources and provide open space. The City has recently updated its water and wastewater master plans to assure that it can both provide adequate service for the projected growth and meet its obligations to maintain the quality and quantity of water resources within and adjacent to the City.

Let me know if you need additional information.

The City of Stayton is an Equal Opportunity Employer and Provider